VENUS IMPACT CRATERS AND EJECTA: RELATIONSHIPS BETWEEN SELECTED MORPHOLOGIC PARAMETERS G.G. Schaber, D.J. Roddy, U.S. Geological Survey (Emeriti), 2255 N. Gemini Drive, Flagstaff AZ 86001, and R.G. Strom, U. of Arizona, Tucson AZ 85721

A revised USGS Venus impact crater data base containing 940 craters includes data on crater nomenclature, location coordinates, diameters, modification state, morphologic type, and elevation have recently been made available [1, 2]. In addition to these crater parameters, measurements of areas of radar-bright ejecta (including outflow deposits), and the areas of smooth crater floor plains (not discussed here), has recently been completed using the Magellan CD-ROMs. This abstract outlines a very preliminary review of basic relationships between the area of ejecta (including outflows) and crater diameter.

Initial conditions that play a dominant role in the cratering process on Venus include: velocity, mass, angle of impact, and rheology of impactor, as well as the atmosphere and target rheology. To a first approximation, in log-log plots, we find that the crater and ejecta dimensional parameters exhibit predictable relationships, i.e., the area of the ejecta + outflow (melt) deposits increase systematically as the size of the impact crater increases (Fig. 1). Power-law line fits are shown on each figure. The data plotted in figure 1 shows generally the same slope as does figure 3 in Grieve and Cintala [3] where model volume of impact melt and transient-cavity diameter were correlated for several large terrestrial impact craters. The lower boundary of the data shown in figure 1 is rather sharp and well-defined while the upper boundary of these data limits shows larger scatter. The latter is believed to be the result of the extensive crater outflows that emanate from 40% to 45% of the craters (of all sizes), especially those created by more oblique than normal impacts [4]. Figure 2 shows the area of crater ejecta (including outflows) normalized to (i.e., divided by) the crater area versus crater area. The negative slope is anticipated since the ballistic range of ejecta is essentially independent of crater size and is similar for all craters (is dependent of ejecta velocity); thus, the ratio of ejecta area to crater area from smaller craters is actually larger than that from larger craters.

The data base described here, including the areas of crater ejecta (plus outflows) and smooth floor plains, will be added soon to the U.S. Geological Survey, Flagstaff Field Center's world wide net Homepage (http://wwwflag.wr.usgs.gov)(See Update of Venus Crater Data Base) (contact- gschaber@flagmail.wr.usgs.gov).

References Cited :[1] Schaber, G.G., Strom, R.G., and Kirk-this conference; [2] Schaber, G.G., Kirk, R.L., and Strom, R.G., 1996, U.S. Geol. Surv. Open-File Rept 96-688, 58 p.; [3] Grieve and Cintala, 1992, *Meteoritics 27*, pp. 526-538; [4] Chadwick, D. J., and Schaber, G.G., 1993, *J. Geophys. Res.*, *98*, E11, pp. 20,891-20,902.

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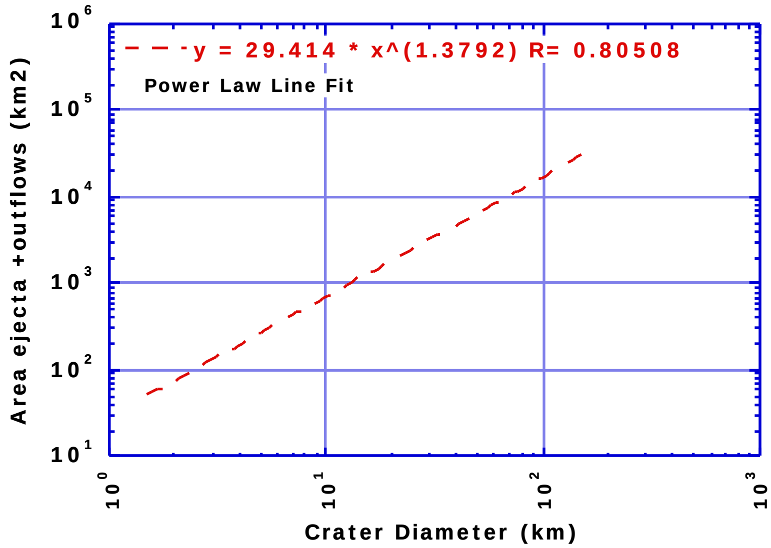

Figure 1

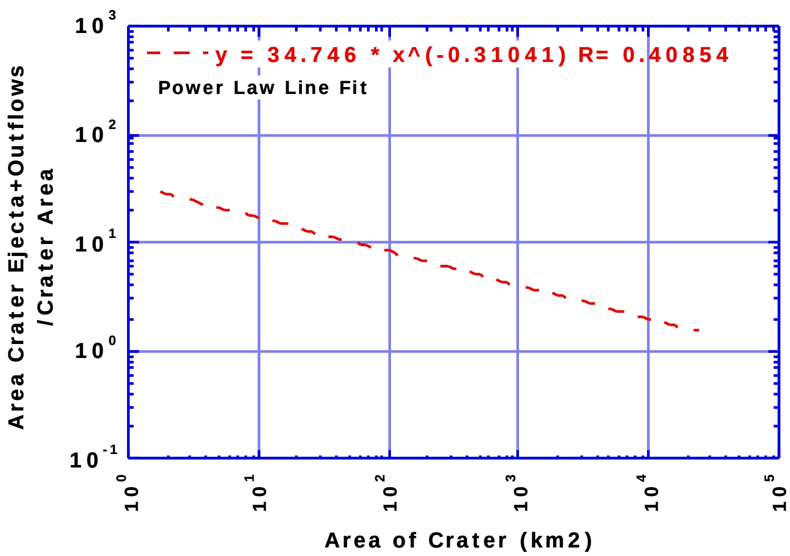

Figure 2